Jabra Evolve2 50
Antenna report

Revision: 1

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Date: 2022-07-29

Revision History:

Revision	Date	Change by	Description
1	2022.07.29	Luisa Gong	First Revision

Table of Contents

1 Introduction

This document describes the radiation performance measurements made on a Jabra Evolve2 50. The measurement results provided in this report are: the total radiated power at three frequencies and the antenna radiation patterns at three frequencies in free space.

The measurements have been performed by:

Luisa Gong

RF Engineer

GN Audio A/S

2 Specification

2.1 Electrical Properties

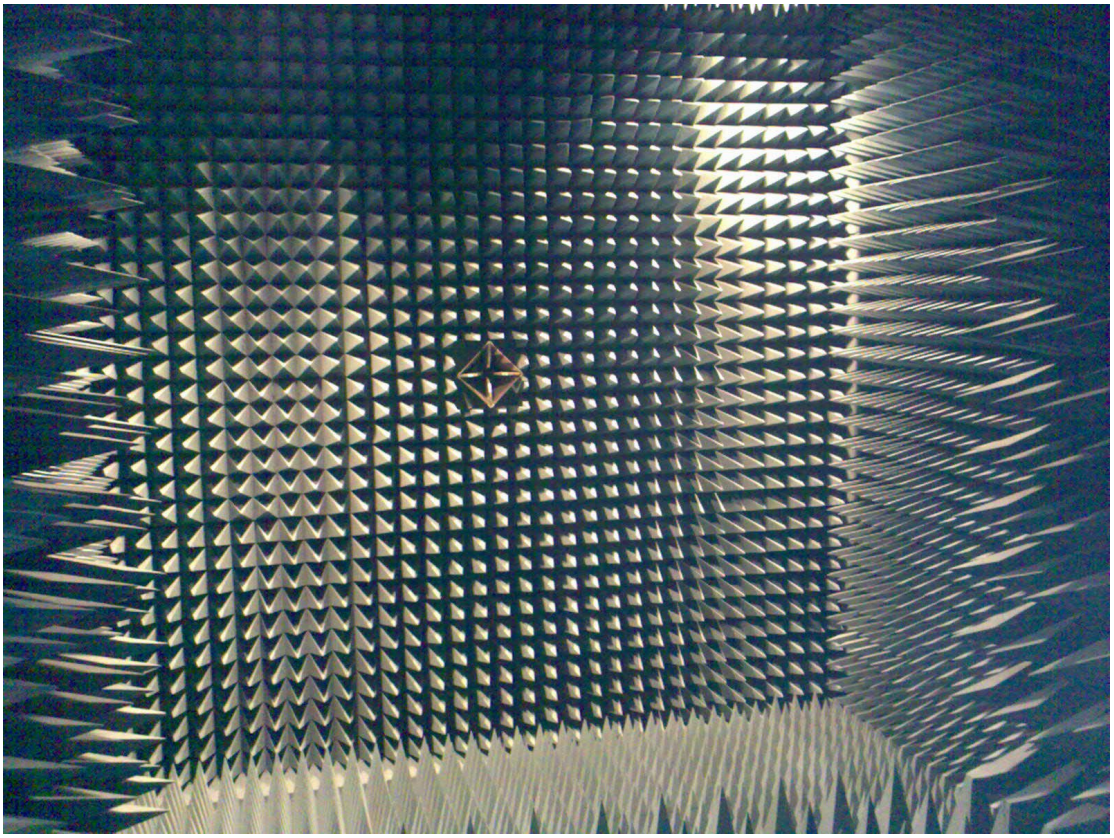
Frequency Range:	2.402GHz ~2.480GHz
Impedance:	50 Ω nominal
Radiation:	omni-directional

2.2 Physical Properties

Type: PCB antenna

Operating temp:	-20 ~ +60 ºC

3 Anechoic Chamber



4 Results

4.1 Conducted power

Results:

a conducted output power of 12dBm on each channel.

4.2 Total radiated power

Channel	0	39	78
Frequency[MHz]	2402	2441	2480
Peak Equivalent isotropic radiated power (EIRP)	15.73 dBm	15.16 dBm	14.75 dBm
Total radiated power	10.16 dBm	9.64 dBm	9.01 dBm

4.3 Antenna patterns

2.402 GHz

CTIA TRP Report (RP_Bluetooth_ch0_tot)

Common Information:

Test Description:	GN OTA Test Report
Operating Conditions:	Fellow_VerC_Ste_FS_TRP
Operator Name:	Luisa
Comment:	

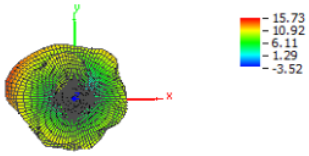
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2402.000 MHz
Test Time:	Start: 7/29/2022 5:24:21 PM; Stop: 7/29/2022 5:47:13 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.71 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.74 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results:

Total Radiated Power	10.16 dBm
Peak EIRP	15.73 dBm
Directivity	5.57 dBi
Peak Gain	15.73 dBi
NHPRP 45 ¡ ã	8.78 dBm
NHPRP 45 ¡ ã / TRP	-1.39 dB
NHPRP 45 ¡ ã / TRP	72.66 %
NHPRP 30 ¡ ã	7.34 dBm
NHPRP 30 ¡ ã / TRP	-2.82 dB
NHPRP 30 ¡ ã / TRP	52.21 %
NHPRP 22.5 ¡ ã	6.12 dBm
NHPRP 22.5 ¡ ã / TRP	-4.05 dB
NHPRP 22.5 ¡ ã / TRP	39.38 %
UHRP	6.21 dBm
UHRP / TRP	-3.95 dB
UHRP / TRP	40.28 %
LHRP	7.93 dBm
LHRP / TRP	-2.24 dB
LHRP / TRP	59.72 %
PGRP (0-120 ¡ ã)	8.40 dBm
PGRP / TRP	-1.77 dB
PGRP / TRP	66.57 %
Front/Back Ratio	6.29
PhiBW	185.2 deg
PhiBW Up	129.9 deg
PhiBW Down	55.3 deg
ThetaBW	30.3 deg
ThetaBW Up	14.9 deg
ThetaBW Down	15.4 deg
Boresight Phi	285 deg
Boresight Theta	150 deg
Maximum Power	15.73 dBm
Minimum Power	-3.52 dBm
Average Power	9.89 dBm
Max/Min Ratio	19.26 dB
Max/Avg Ratio	5.84 dB
Min/Avg Ratio	-13.41 dB
Worst Single Value	-16.20 dBm
Worst Position	Azi = 195 deg; Elev = 165 deg; Pol = Hor

Theta = 0, Phi = 0



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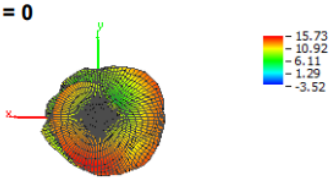

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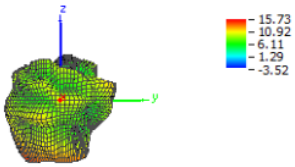

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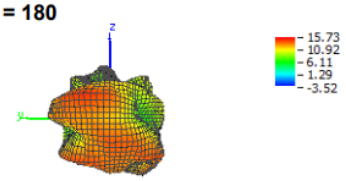

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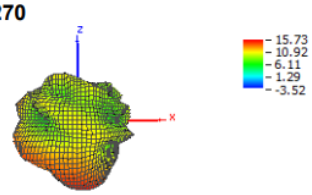

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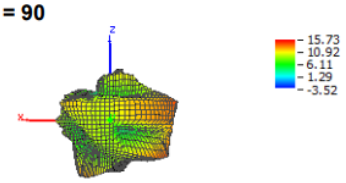


2.441GHZ

CTIA TRP Report (RP_Bluetooth_ch39_tot)

Common Information:

Test Description:	GN OTA Test Report
Operating Conditions:	Fellow_VerC_Ste_FS_TRP
Operator Name:	Luisa
Comment:	

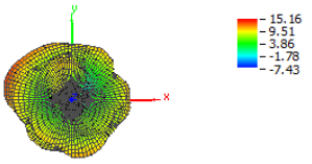
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2441.000 MHz
Test Time:	Start: 7/29/2022 5:24:21 PM; Stop: 7/29/2022 5:47:13 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.60 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.59 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results:

Total Radiated Power	9.64 dBm
Peak EIRP	15.16 dBm
Directivity	5.52 dBi
Peak Gain	15.16 dBi
NHPRP 45 ¡ ã	8.26 dBm
NHPRP 45 ¡ ã / TRP	-1.38 dB
NHPRP 45 ¡ ã / TRP	72.76 %
NHPRP 30 ¡ ã	6.88 dBm
NHPRP 30 ¡ ã / TRP	-2.76 dB
NHPRP 30 ¡ ã / TRP	53.01 %
NHPRP 22.5 ¡ ã	5.69 dBm
NHPRP 22.5 ¡ ã / TRP	-3.95 dB
NHPRP 22.5 ¡ ã / TRP	40.26 %
UHRP	5.79 dBm
UHRP / TRP	-3.85 dB
UHRP / TRP	41.25 %
LHRP	7.33 dBm
LHRP / TRP	-2.31 dB
LHRP / TRP	58.75 %
PGRP (0-120 ¡ ã)	7.95 dBm
PGRP / TRP	-1.69 dB
PGRP / TRP	67.80 %
Front/Back Ratio	4.92
PhiBW	113.8 deg
PhiBW Up	69.3 deg
PhiBW Down	44.5 deg
ThetaBW	36.7 deg
ThetaBW Up	13.3 deg
ThetaBW Down	23.4 deg
Boresight Phi	270 deg
Boresight Theta	150 deg
Maximum Power	15.16 dBm
Minimum Power	-7.43 dBm
Average Power	9.41 dBm
Max/Min Ratio	22.59 dB
Max/Avg Ratio	5.75 dB
Min/Avg Ratio	-16.84 dB
Worst Single Value	-23.02 dBm
Worst Position	Azi = 240 deg; Elev = 60 deg; Pol = Ver

Theta = 0, Phi = 0



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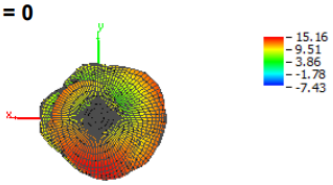

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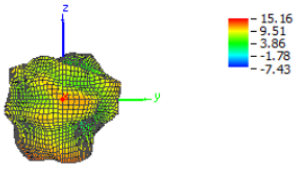

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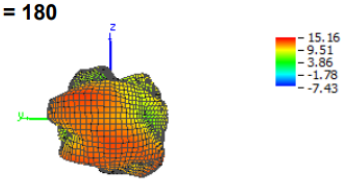

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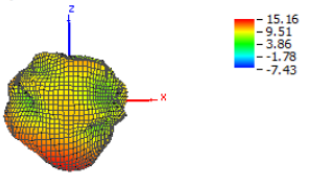

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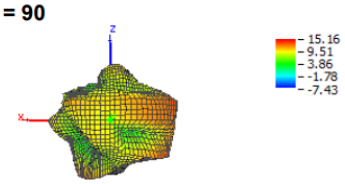


2.480GHZ

CTIA TRP Report (RP_Bluetooth_ch78_tot)

Common Information:

Test Description:	GN OTA Test Report
Operating Conditions:	Fellow_VerC_Ste_FS_TRP
Operator Name:	Luisa
Comment:	

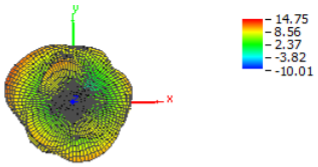
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2480.000 MHz
Test Time:	Start: 7/29/2022 5:24:21 PM; Stop: 7/29/2022 5:47:13 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.58 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.25 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results:

Total Radiated Power	9.01 dBm
Peak EIRP	14.75 dBm
Directivity	5.74 dBi
Peak Gain	14.75 dBi
NHPRP 45 ¡ ã	7.59 dBm
NHPRP 45 ¡ ã / TRP	-1.42 dB
NHPRP 45 ¡ ã / TRP	72.03 %
NHPRP 30 ¡ ã	6.19 dBm
NHPRP 30 ¡ ã / TRP	-2.83 dB
NHPRP 30 ¡ ã / TRP	52.17 %
NHPRP 22.5 ¡ ã	5.01 dBm
NHPRP 22.5 ¡ ã / TRP	-4.00 dB
NHPRP 22.5 ¡ ã / TRP	39.77 %
UHRP	5.16 dBm
UHRP / TRP	-3.85 dB
UHRP / TRP	41.24 %
LHRP	6.70 dBm
LHRP / TRP	-2.31 dB
LHRP / TRP	58.76 %
PGRP (0-120 ¡ ã)	7.34 dBm
PGRP / TRP	-1.67 dB
PGRP / TRP	68.09 %
Front/Back Ratio	9.23
PhiBW	58.6 deg
PhiBW Up	33.0 deg
PhiBW Down	25.6 deg
ThetaBW	34.9 deg
ThetaBW Up	24.1 deg
ThetaBW Down	10.8 deg
Boresight Phi	255 deg
Boresight Theta	135 deg
Maximum Power	14.75 dBm
Minimum Power	-10.01 dBm
Average Power	8.72 dBm
Max/Min Ratio	24.76 dB
Max/Avg Ratio	6.03 dB
Min/Avg Ratio	-18.73 dB
Worst Single Value	-17.08 dBm
Worst Position	Azi = 30 deg; Elev = 135 deg; Pol = Hor

Theta = 0, Phi = 0



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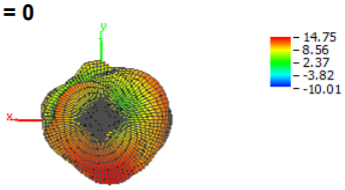

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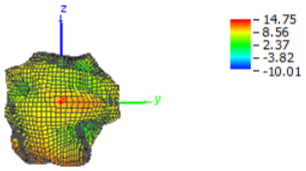

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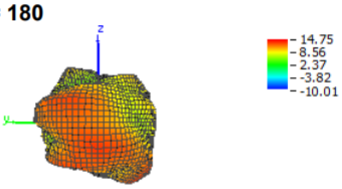

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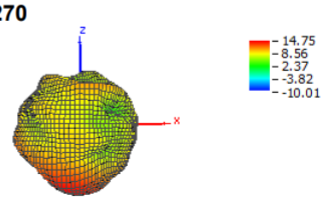

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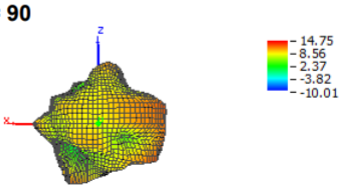

5 Conclusion

The total radiated power from the Jabra Evolve2 50 varies from 9.01 dBm to 10.16 dBm in free space depending on the frequency. The conducted power is 12 dBm. These figures yield an antenna gain(peak) in the range of 2.75 dBi and 3.73 dBi.

	2402 MHz	2440 MHz	2480 MHz
Conducted power	12 dBm	12 dBm	12 dBm
Peak Equivalent isotropic radiated power (EIRP)	15.73 dBm	15.16 dBm	14.75 dBm

	2402 MHz	2440 MHz	2480 MHz
Antenna gain （Peak）	3.73 dBi	3.16 dBi	2.75 dBi